Early temporary ART for HIV-infected infants prevents damage to immune system and delays need for life-long treatment

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Giving antiretroviral therapy (ART) immediately after diagnosis for a limited period of time is more beneficial than postponing treatment in young infants infected with HIV, slowing progression of the disease and delaying the time to starting long-term ART, according to new research published in *The Lancet*.

"This important finding indicates we may be able to temporarily stop treatment and spare infants from some of the toxic effects of continuous ART for a while, if we can monitor them carefully", explains Professor Mark Cotton from Stellenbosch University in South Africa, one of the study leaders.

"With ART coverage in children currently at just 28%, our findings highlight the urgency of increasing early (within the first 3 months of life) testing and treatment of HIV-infected infants."

Although giving early ART during infancy is beneficial and lifesaving, currently treatment must be taken for life and cumulative exposure increases the likelihood of drug-related toxicity and drug resistance.

In 2005, the children with HIV early antiretroviral (CHER) trial, funded by the US National Institutes of Health, and with participation of the Medical Research Council Clinical Trial Unit in London, randomly assigned 377 HIV-infected infants (between 6 and 12 weeks of age)

from South Africa to one of three regimens: immediate protease inhibitor (PI)-based ART and continue for 40 weeks (ART-40W); immediate PI-based ART and continue for 96 weeks (ART-96W), with subsequent treatment interruption; or defer PI-based ART until signs of illness or a weakened immune system (ART-Def; standard practice).

In 2007, interim results reported that after a median of 48 weeks, giving immediate PI-based ART reduced the risk of death and disease progression by 75% compared with deferring ART until signs of illness or a weakened immune system.

These findings led WHO to revise its treatment guidelines and recommend that ART be started immediately after HIV diagnosis in children under 1 year old rather than at a particular CD4 level.

Here, the investigators report the 5-year results of the completed CHER trial, showing that infants who began an immediate short course of ART could safely interrupt treatment and continue to do significantly better than infants in whom ART was deferred, and with less overall exposure to ART.

On average, infants who received deferred ART needed to begin taking life-long treatment 20 weeks after randomisation. Those given the immediate course of 40 weeks ART delayed the need for re-starting treatment by 33 weeks, and those who received the initial 96 week ART course delayed beginning long-term treatment by 70 weeks.

By the end of the trial, 24 infants (19%) given 40 weeks of early ART and 40 infants (32%) who received 96 weeks of initial ART were still well enough to remain off treatment.

What is more, despite a longer period of continuous ART, the deferred treatment group had a significantly higher number of deaths, clinical

events, and admissions to hospital, and was more costly than time-limited ART.

According co-lead author Dr Avy Violari from the University of the Witwatersrand in South Africa, "Early treatment followed by a break is definitely better and more cost-effective than delaying starting infants on treatment. But we do not know if a longer initial period of treatment, or early continuous treatment, might be even better."

Writing in a linked Comment, Robert Colebunders from the University of Antwerp in Belgium and Victor Musiime from Makerere University College of Health Sciences in Kampala, Uganda, caution that little is known about the consequences of treatment interruptions and suggest that such a strategy may not be feasible in resource-poor settings such as Africa, where most children with HIV live, and where the availability of laboratories to monitor CD4 counts is limited.

However, they point out, "In the future, straightforward point-of-care tests…will probably become available for very early infant diagnosis. Together with new methods to monitor the infection, cessation of ART after a prolonged course of a highly effective treatment regimen could become an option…Indeed, if we were able to diagnose HIV infection in neonates very early and start ART shortly after birth, a prolonged period without ART, and perhaps even a functional cure in some children, can be expected."

More information: www.thelancet.com/journals/lan … (13)61409-9/abstract

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